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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/585,682	06/01/2000	Kei-Yu Ko	3526.2US(97-1136.2)	7481

7590 05/30/2003  
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EXAMINER

CHU, CHRIS C

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 05/30/2003

13

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/585,682

Applicant(s)

KO ET AL.

Examiner

Chris C. Chu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 - 13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 - 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's request filed on February 25, 2003 for reconsideration of the non-final rejection of the last Office action is persuasive and, therefore, the non-final rejection of the last Office action is withdrawn.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 ~ 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Cargo et al.

Regarding claim 1, Cargo et al. discloses in Fig. 2 and column 2, lines 41 ~ 45 a semiconductor device, comprising:

- a semiconductor substrate (51) including an active device region;

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- at least one conductive line (55) disposed upon said active device region, said at least one conductive line being flanked by sidewall spacers;
- an undoped silicon dioxide cap (the lower portion of the bi-layer 61) disposed over and in contact with said at least one conductive line;
- a passivation layer (the upper portion of the bi-layer 61) over said undoped silicon dioxide cap; and
- at least one contact aperture (the area of 67) defined through said passivation layer and including at least one sidewall extending substantially perpendicularly relative to said semiconductor substrate, at least a portion of said at least one sidewall terminating at said undoped silicon dioxide cap.

As to the language on line 2 of claim 2, “a word line”, applicant should note that this is merely function language which does not differentiate the claimed apparatus from Cargo et al.

Regarding claim 3, Cargo et al. discloses in column 2, lines 41 ~ 45 said passivation layer (the upper portion of the bi-layer 61) comprising doped silicon dioxide.

Regarding claim 4, Cargo et al. discloses in column 2, lines 41 ~ 45 said passivation layer comprising borophosphosilicate glass, phosphosilicate glass, or borosilicate glass.

Regarding claim 5, Cargo et al. discloses said undoped silicon dioxide cap being at least partially exposed through said at least one contact aperture.

Regarding claim 6, Cargo et al. discloses in Fig. 2 and column 2, lines 41 ~ 45 a semiconductor device, comprising:

- a semiconductor substrate (51);
- at least one undoped silicon oxide structure (the lower portion of the bi-layer 61); and

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- at least one doped silicon oxide structure (the upper portion of the bi-layer 61) over said at least one undoped silicon oxide structure and having at least one sidewall substantially perpendicular to a plane of said semiconductor substrate, at least a portion of said at least one sidewall terminating at said at least one undoped silicon oxide structure.

Regarding claim 7, Cargo et al. discloses in Fig. 2 said at least one sidewall comprising a sidewall of an aperture (the area of 67).

Regarding claim 8, Cargo et al. discloses in Fig. 2 and column 2, lines 41 ~ 45 said at least one sidewall at least partially defines an aperture (the area of 67) through said doped silicon oxide structure.

Regarding claim 9, Cargo et al. discloses in column 2, lines 41 ~ 45 said at least one doped silicon oxide structure comprising borophosphosilicate glass, phosphosilicate glass, or borosilicate glass.

Regarding claim 10, Cargo et al. discloses in Fig. 2 and column 2, lines 41 ~ 45 said at least one undoped silicon oxide structure being at least partially located over a conductive structure.

Regarding claim 11, Cargo et al. discloses in Fig. 2 and column 2, lines 41 ~ 45 said at least one undoped silicon oxide structure comprising an insulative cap over a conductive line.

Regarding claim 12, Cargo et al. discloses in Fig. 2 and column 2, lines 41 ~ 45 said insulative cap being partially exposed through an aperture of said at least one doped silicon oxide structure defined by said at least one sidewall.

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Regarding claim 13, Cargo et al. discloses in Fig. 2 and column 2, lines 41 ~ 45 said at least one undoped silicon oxide structure being at least partially exposed adjacent said at least one sidewall.

### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1, 11 and 13 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cote et al. recites in column 4, lines 55 and 56 phosphorus-doped silicon dioxide is known as phosphosilicate glass (PSG).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is (703) 305-6194. The examiner can normally be reached on M-F (10:30 - 7:00).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Chris C. Chu  
Examiner  
Art Unit 2815

c.c.  
May 19, 2003



EDDIE LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800